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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,454	12/27/2001	Hiroki Takeuchi	Q67930	1274

7590

07/08/2003

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EXAMINER
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WILLIAMS, ALEXANDER O

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/026,454

Applicant(s)

TAKEUCHI ET AL.

Examiner

Alexander O Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9, 10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-7, 9, 10 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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Serial Number: 10/026454 Attorney's Docket #: Q67930

Filing Date: 12/27/2001; claimed foreign priority to 12/28/2000 and 8/27/2001

Applicant: Takeuchi et al.

Examiner: Alexander Williams

Applicant's Amendment in Paper # 14, filed 4/17/03, has been acknowledged.

This application contains claims 1 to 4 drawn to an invention non-elected with traverse in Paper No. 9.

Claims 8 and 14 have been canceled.

Applicant's Terminal Disclaimer in Paper # 15, filed 4/17/03, has been acknowledged.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

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Initially, and with respect to claims 5 to 7 and 10, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

Claims 5 to 7, 9, 10 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Konarski (U.S. Patent Application Publication # 2002/0058756 A1) in view of Ichiroku et al. (U.S. Patent # 6,117,953).

For example, in claim 5, Konarski (figures 1 and 2) show a wiring substrate comprising: an insulating substrate **21** having an opening; at least one electronic part **2** disposed in the opening; an embedding resin **23** comprising a thermoplastic resin, an acid anhydride curing agent, a curing accelerator, and a filler, wherein the at least one electronic part is embedded with the embedding resin, but fail to explicitly show the filler having a particle size in the amount of weight % claimed by applicant.

Ichiroku et al. is cited for showing a liquid epoxy resin composition for BGA package. Specifically, Ichiroku et al. discloses an embedding resin comprising a thermoplastic resin, an acid anhydride curing agent, a curing accelerator, and a filler, wherein the at least one electronic part is embedded with the embedding resin, the filler having a particle size (**see column 5, lines 35-46**) in the amount of weight % (**see column 5, line 62- column 6, line 21**) claimed by applicant for the purpose of providing a liquid epoxy resin composition for ball grid arrays which has a low viscosity, high cure rate, good shelf stability, good ease of processing, and high reliability, and is able, when used as a semiconductor chip encapsulant, to give packages having minimal warp.

Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention to use Ichiroku et al.'s embedding resin to modify Konarski's embedded resin for the purpose of providing a liquid epoxy resin composition for ball grid arrays which has a low viscosity, high cure rate, good shelf stability, good ease of processing, and high reliability, and is able, when used as a semiconductor chip encapsulant, to give packages having minimal warp.

As to the grounds of rejection under section 103, see MPEP § 2113.

Claims 5 to 7, 9, 10 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsukagoshi et al. (U.S. Patent # 5,120,665) in view of Ichiroku et al. (U.S. Patent # 6,117,953).

For example, in claim 5, Tsukagoshi et al. (figures 1a to 9) specifically figure 8 show a wiring substrate comprising: an insulating substrate **14** having an opening; at least one electronic part **11** disposed in the opening; an embedding resin **13,16,18,1** comprising a thermoplastic resin, an acid anhydride curing agent, a curing accelerator, and a filler, wherein the at least one electronic part is embedded with the embedding resin, but fail to explicitly show the filler having a particle size in the amount of weight % claimed by applicant.

Ichiroku et al. is cited for showing a liquid epoxy resin composition for BGA package. Specifically, Ichiroku et al. discloses an embedding resin comprising a thermoplastic resin, an acid anhydride curing agent, a curing accelerator, and a filler, wherein the at least one electronic part is embedded with the embedding resin, the filler having a particle size (**see column 5, lines 35-46**) in the amount of weight % (**see column 5, line 62- column 6, line 21**) claimed by applicant for the purpose of providing a liquid epoxy resin composition for ball grid arrays which has a low viscosity, high cure rate, good shelf stability, good ease of processing, and high reliability, and is able, when used as a semiconductor chip encapsulant, to give packages having minimal warp.

Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention to use Ichiroku et al.'s embedding resin to modify Tsukagoshi et al.'s embedded resin for the purpose of providing a liquid epoxy resin composition for ball grid arrays which has a low viscosity, high cure rate, good shelf stability, good ease of processing, and high reliability, and is able, when used as a semiconductor chip encapsulant, to give packages having minimal warp.

As to the grounds of rejection under section 103, see MPEP § 2113.

Claims 5 to 7, 9, 10 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sumita (U.S. Patent # 6,429,238 B1) in view of Ichiroku et al. (U.S. Patent # 6,117,953).

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For example, in claim 5, Sumita (figures 1 to 2A) show a wiring substrate comprising: an insulating substrate **1** having an opening; at least one electronic part **3** disposed in the opening; an embedding resin **4,5** comprising a thermoplastic resin, an acid anhydride curing agent, a curing accelerator, and a filler, wherein the at least one electronic part is embedded with the embedding resin, but fail to explicitly show the filler having a particle size in the amount of weight % claimed by applicant.

Ichiroku et al. is cited for showing a liquid epoxy resin composition for BGA package. Specifically, Ichiroku et al. discloses an embedding resin comprising a thermoplastic resin, an acid anhydride curing agent, a curing accelerator, and a filler, wherein the at least one electronic part is embedded with the embedding resin, the filler having a particle size (**see column 5, lines 35-46**) in the amount of weight % (**see column 5, line 62- column 6, line 21**) claimed by applicant for the purpose of providing a liquid epoxy resin composition for ball grid arrays which has a low viscosity, high cure rate, good shelf stability, good ease of processing, and high reliability, and is able, when used as a semiconductor chip encapsulant, to give packages having minimal warp.

Therefore, it would be obvious to one of ordinary skill in the art at the time of the invention to use Ichiroku et al.'s embedding resin to modify Sumita's embedded resin for the purpose of providing a liquid epoxy resin composition for ball grid arrays which has a low viscosity, high cure rate, good shelf stability, good ease of processing, and high reliability, and is able, when used as a semiconductor chip encapsulant, to give packages having minimal warp.

As to the grounds of rejection under section 103, see MPEP § 2113.

## Response

Applicant's arguments filed 4/19/03 have been fully considered, but are moot in view of the new grounds of rejections detailed above.

The insertion of Applicant's additional claimed language, for example, "in claims 5 and 6" cause for further search and consideration to make this action final.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

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A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/783,758,700,701,668,759,784,786-790	11/13/02 6/25/03
Other Documentation: foreign patents and literature in 257/783,758,700,701,668,759,784,786-790	11/13/02 6/25/03
Electronic data base(s): U.S. Patents EAST	11/13/02 6/25/03

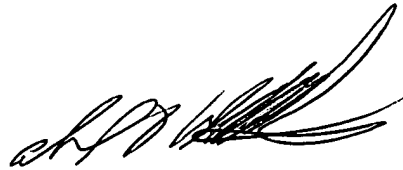
***Papers related to this application may be submitted to Technology Center 2800 by facsimile transmission. Papers should be faxed to Technology Center 2800 via the Technology Center 2800 Fax center located in Crystal Plaza 4-5B15. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center 2800 Fax Center number is (703) 308-7722 or 24. Only Papers related to Technology Center 2800 APPLICATIONS SHOULD BE FAXED to the GROUP 2800 FAX CENTER.***

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Any inquiry concerning this communication or any earlier communication from the examiner should be directed to ***Examiner Alexander Williams*** whose telephone number is **(703) 308-4863**.

Any inquiry of a general nature or relating to the status of this application should be directed to the ***Technology Center 2800 receptionist*** whose telephone number is **(703) 308-0956**.

6/26/03

A handwritten signature in black ink, appearing to read 'A. Williams', with a stylized flourish extending from the end.

Primary Examiner  
Alexander O. Williams